BEFORE

THE PUBLIC SERVICE COMMISSION OF

SOUTH CAROLINA

DOCKET NO. 2000-558-E - ORDER NO. 2001-194

MARCH 28, 2001

IN RE: Application of Greenville Generating Company, LLC for a Certificate of Environmental Compatibility and Public Convenience and Necessity to Construct and Operate a Generating Plant for the Production of Power and Energy in the Vicinity of Fork Shoals, SC	))))))	ORDER GRANTING CERTIFICATE

INTRODUCTION

This matter comes before the Public Service Commission of South Carolina (the Commission) on the Application of Greenville Generating Company, LLC (Greenville Generating or the Company) for a Certificate of Environmental Compatibility and Public Convenience and Necessity, pursuant to the provisions of S.C. Code Ann. Sections 58-33-10 et seq. (1976) and (Supp. 2000) (the Siting Act). Because the record of this proceeding establishes that Greenville Generating has satisfied the statutory requirements for the relief it seeks, the Commission will herein approve the Application and issue the requested Certificate.

Prior to the submission of its Application, Greenville Generating published notice of its intent to apply for a Certificate under the Siting Act, as the provisions of Section 58-33-120(3) require. In addition, the Application included certification that Greenville Generating had served a copy of the Application on those governmental officials and such other persons as Section 58-33-120(2) of the Siting Act requires.

Upon receipt of Greenville Generating's Application, the Commission's Executive Director required the Company to publish a prepared Notice of Filing which described the nature of the Application and advised all interested parties of the manner in which they might intervene or otherwise participate in this proceeding. Greenville Generating submitted an affidavit which demonstrated compliance with the Executive Director's instructions. Petitions to Intervene were received from Duke Power, the Consumer Advocate for the State of South Carolina (the Consumer Advocate), and South Carolina Electric & Gas Company (SCE&G). An additional late-filed Petition to Intervene was received from Piedmont Natural Gas Company, Inc., however, this Petition was denied. (See Order No. 2001-126.)

On February 8, 2001, in accordance with Section 58-33-130 of the Siting Act, and with the Commission's Rules of Practice and Procedure, the Commission conducted an evidentiary hearing in this proceeding. Greenville Generating was represented by Kevin A. Hall, Esq., Larry Kristinick, Esq., and John McDermott, Esq. The Intervenor, Duke Power, was represented by Karol P. Mack, Esq. and Richard L. Whitt, Esq. Hana Porkorna-Williamson, Esq. represented the Consumer Advocate. SCE&G was represented by Catherine D. Taylor, Esq. The Commission Staff was represented by F. David Butler, General Counsel.

Greenville Generating presented the testimony of Steve Stewart, Bradley Williams, Rene' Kirchfeld, and Jolecia Marigny. No witnesses were presented by Duke Power, the Consumer Advocate, or SCE&G. The Commission Staff presented the testimony of Brent L. Sires and A.R. Watts.

In addition to the testimony of these six witnesses and five hearing exhibits, the record of this proceeding includes Greenville Generating's Application, the various notices, pleadings and order to which this Order has previously referred.

SUMMARY OF TESTIMONY

Steve Stewart

Greenville Generating first presented the testimony of Steve Stewart. Tr. Vol. 1, Stewart at 13-26. Stewart is the County Administrator for Greenville County. Stewart recommended that this Commission grant the requested Certificate, and pointed to various positive impacts of the facility on Greenville County. The facility has the support of Greenville County Council and the Greater Greenville Chamber of Commerce. According to Stewart, the facility will provide several significant benefits with only minimal impact on infrastructure services. Stewart notes that the facility fits well into Greenville County's growth plans. Estimated tax revenues show that the facility will generate for Greenville County over $1 million annually in property taxes alone, with additional revenue generated through sales and income taxes and various permit fees. Stewart believes that the increase in tax base will positively affect the revenue generated for Greenville County schools. Further, Stewart notes that the addition of power capacity will help facilitate further economic development and expansion, and will create new jobs in the County. Finally, Stewart believes that any environmental impact will be minimal and not adverse.

Bradley Williams

The Company next presented the testimony of Bradley Williams, Senior Vice-President of Power Development for North America for Entergy Wholesale Operations (EWO or Entergy), a parent corporation to Greenville Generating. Tr. Vol. 1, Williams at 26-147. In general, Williams describes EWO's relationship with Greenville Generating, the location and purpose of the proposed facility, the Company's commitment to conform to state and local laws and regulations, the need for the facility, siting considerations, system reliability, system economy, and why the public convenience and necessity require the approval of the Application.

According to Williams, Entergy is one of the largest operators of gas-fired generation in the United States and the largest purchaser of natural gas. Entergy owns, manages, or invests in power plants generating more than 30,000 MW of electricity. Greenville Generating is a single-purpose company formed under EWO, and is therefore an indirect subsidiary of Entergy.

Williams notes that the Company intends to construct a six-unit simple cycle combustion turbine generating plant with a nominal net capacity of 900 MW fueled primarily by natural gas and connected to the Duke Power transmission grid. The estimated cost of the facility is $380 million, and its commercial operation is predicted by June 2003. Williams notes that the facility will be located on a site west of Fork Shoals, in Greenville County, South Carolina. The southern edge of the parcel is bounded by a Duke 500 kV transmission line.

In addition, Williams testified that the facility will operate as a fully dispatchable facility, i.e. it may start up, shut down, and change load as required by the Company to meet market demand. The facility will be operated as a peaking plant, running as necessary to meet the peak electrical loads for this region. According to Williams, the facility should compliment generation assets in the region and is not expected to replace any of those facilities. The unit will produce lower emissions than older fossil fuel plants.

With regard to environmental considerations, the Company expects to achieve minimal and not adverse impacts on water, sound, and air quality and on natural resources from the construction and operation of the facility. Williams testified that the probable environmental impact of the facility is justified, considering the state of available technology and the nature of economics of the various alternatives and other pertinent considerations. Further, the Company pledges that the proposed facility will conform to applicable state and local laws and regulations.

Williams testified that the public convenience and necessity require the construction of the facility, based on the projected growth in demand for electric generation in the county, state, and region, which, according to Williams, establishes the need for additional supply requirements. Williams notes that experts routinely review publicly available information such as the reliability studies conducted by the North American Reliability Council (NERC), specifically for the South East Reliability Council (SERC) region, and, within SERC, for the Virginia-Carolinas subregion (VACAR). Further, experts review studies conducted by independent research organizations, and many other sources. Williams concludes, after analyzing the supply and demand for

electricity in South Carolina and the Southeast, that the proposed facility is needed to meet anticipated demand, and that it will promote system economy and reliability, and will serve the public convenience and necessity.

Williams describes his analysis by stating that he first looked at available NERC and SERC data and other regional data, then examined available South Carolina data. Williams notes that the reliability of electric service in every state is tied to the reliability of a much larger regional system. According to Williams, if the region's generation or transmission resources are inadequate, the reliability of electric service in South Carolina and the region as a whole likely will be compromised.

An examination of the Department of Energy's Energy Information Administration's 2000 Form 411 report for SERC, reveals that the average growth in summer peak demand within the SERC region, which includes South Carolina, is expected to be approximately 2.23% annually. (Hearing Exhibit 2). Further, according to NERC's *Reliability Assessment 2000-2009-The Reliability of Bulk Electric Systems in North America* (Hearing Exhibit 2), significant amounts of new capacity must be built within the SERC region in order to keep pace with this demand. Williams notes that much of this growth comes from residential and commercial users that only need capacity during daylight hours. Williams opines that this type of demand can best be met with more flexible generating capacity that can be most efficiently provided by gas combustion turbines similar to what is being proposed in the Greenville project. Further, according to Williams, new plant additions within the SERC region and within South Carolina are critical to meet electricity needs of South Carolina and the region.

Additionally, Williams states a belief that without the addition of merchant plants such as the one proposed in the Application, it is expected that there will be a shortage of capacity to meet the needs of users.

Williams states that he also examined the age of the existing generating units as well as the effect of unit age on scheduled and unscheduled maintenance. In South Carolina, the last significant generating facility was put into service in approximately 1996. All other significant generation assets serving the State's needs have been in service for a longer period of time. Williams also noted that new environmental regulations may require various coal-fired units to shut down for varying periods in order to comply with those regulations.

Further, according to Williams, another study shows that the SERC region will have a need for more than 58,000 megawatts of additional generation capacity by the year 2012, according to the independent consulting firm Research Data International, Inc. According to the RDI 1999 Outlook "[SERC] is a summer-peaking region characterized by a tightening capacity market resulting from the combination of unprecedented growth and limited capacity additions by regional utilities. Without significant resource additions in the near future, SERC is likely to face severe capacity shortages." (Hearing Exhibit 2).

With regard to the situation specifically in South Carolina, Williams states a belief that there will be need for additional electricity in the years ahead. He notes that a new winter peak demand for electricity was set on January 3, 2001. This new peak demand, coupled with maintenance outages at the V.C. Summer plant and the Cope station forced some local utilities to buy electricity from third party sources and to import

power from other states to meet demand. Williams states that as aging generation assets require increased scheduled maintenance, these scheduled outages, along with continued load growth in South Carolina, will strain assets that are available to meet the State's electricity needs.

Williams states generally that the demand is outpacing the supply in South Carolina, and, as a result, reserve margins in South Carolina are decreasing. Further, other investor-owned utilities serving South Carolina have acknowledged the need for additional capacity in South Carolina, as has Santee-Cooper. Neighboring states have seen an increased demand for electricity as well.

Duke Power and Carolina Power & Light (CP&L) have, through their Intergrated Resource Plans (IRPs), called for additional capacity.

Williams states that merchant generating capacity, such as that seen in the present proposal, has played and will continue to play a critical role in meeting the current and future electricity demands in South Carolina and the Southeast. In the NERC *Reliability Assessment 2000-2009-The Reliability of Bulk Electric Systems in North America,* it is stated that the majority of foreseeable generation additions are expected to be constructed by the independent merchant generation industry. Williams notes that investor-owned utilities have not constructed generating facilities with the degree of frequency that they did in years past. NERC has stated its recognition that merchant generation is critical to meeting the anticipated demands for electricity. The same NERC document states that the adequacy of long term generation is "dependent upon the continued response of merchant power plant developers to market signals to construct new generating facilities (and their

ability to obtain the necessary siting approvals) in areas with declining capacity margins. Williams states that without the availability of new merchant generating capacity in the future, the generation capacity available to South Carolina and the Southeast would be inadequate, and system reliability and economy would be negatively impacted.

Accordingly, Williams concludes that the proposed Greenville Generating facility is needed to meet anticipated demand in these areas. This conclusion comes after analyzing the supply and demand for electricity in South Carolina and the Southeast. Tr. Vol. 1, Williams at 71.

Williams also discussed the various considerations involved in site selection for new energy projects, including the site described in the Company's Application. Among other factors, EWO considers the power needs of the state and region, the ability to acquire necessary real property on an economically feasible basis, available natural resources, fuel supply, and electric transmission and other infrastructure available in the surrounding area, as well as environmental impacts. Williams notes that all of these factors were considered in the present case, and that many sites were studied in the Upstate of South Carolina before settling on this particular location. Transco's natural gas pipeline runs through much of the area and there is adequate transmission capacity in the area, therefore there were a number of potential sites available, as per Williams. Further, property was available on an economically feasible basis, and the water needs for the project could be obtained with only limited difficulty. Williams states that there are no environmental issues that preclude the use of this site. Finally, there is good community support for the facility and the economic benefits it will bring to the region. Summarizing

this area, Williams noted that there were many factors considered before settling on the present site, including electricity supply, current and future electricity demand, as well as access to electric transmission and natural gas pipelines. After evaluating these variables with regard to possible plant locations, EWO ultimately determined that the proposed site would fulfill the Company's needs, although it could have easily chosen another location in the same area, since many sites met the Company's criteria.

Williams also testified that the facility will promote the interests of system economy in a number of ways. First, Williams notes that South Carolina customers will only pay for additional capacity if and when they decide to purchase it. Greenville Generating Company will be taking all of the risk if the forecasted demand growth does not occur.

Next, the Greenville plant is planned to run on natural gas and will utilize a technologically advanced and economically efficient generation process, as per Williams. Also, the Greenville facility will enhance fuel diversity, which will protect South Carolinians from adverse economic impacts due to price increases in a single commodity or change in regulation of a single technology, according to Williams. Williams noted that it is important to have power generation sources that utilize a mix of fuel types to minimize risk of price fluctuations, and the Greenville project will enhance such diversity. Williams also noted that the type of peaking capacity to be provided by this plant is clean, efficient, economical, and the availability of additional peaking capacity will allow South Carolinians to align the mix of capacity purchases more closely with demand.

Addressing system reliability, Williams notes that the Greenville facility will promote both statewide and regional reliability in several ways. The facility will add 900 megawatts of additional electric generation, which will be available to serve the needs of South Carolinians, as well as others throughout the Southeast. Williams states that the Greenville plant's capacity will make a significant difference in establishing adequate reserve margins. Williams testified that the plant will enhance the transmission system that serves South Carolina because it will include upgrades to nearby transmission facilities. These improvements will be paid for by Greenville Generating Company and will promote reliability. Load flow patterns will not be negatively altered. Further, a new substation funded by Greenville Generating Company will provide enhanced switching options for the transmission system operator. Such improvements, according to Williams, will provide flexibility and reliability within the system serving both South Carolina and the Southeast as a whole.

Finally, Williams testified that the advanced and economically efficient technology employed by the proposed facility will serve the interest of system reliability in two ways. First, Williams notes that the turbines have quick-start capability. This allows the transmission system operator to react quickly to sudden, unexpected outages of generation and transmission facilities, while maintaining system voltage without relying on emergency power supplies from neighboring regions. Also, Williams states that the Greenville plant's operational characteristics facilitate responding to the minute-to-minute changes in load that naturally occur on an everyday basis. The Greenville plant

will provide 900 MW of load following capability which could be available to the transmission system operator.

Rene' Kirchfeld

Rene' Kirchfeld, Senior Director of Business Development for EWO testified. Tr. Vol. 1, Kirchfeld at 147-176. Kirchfeld described the facility, its buildings, operations, equipment, and interconnections with natural gas and power lines.

Kirchfeld testified that the facility will be a merchant peaking facility consisting of six combustion turbine generator units operating in simple cycle mode to produce a total net electrical output of approximately 900 MW. Each of the units will be enclosed in its own weather-tight acoustical enclosure as built by General Electric and each will have its own exhaust stack. Three natural gas-fired fuel heaters will be utilized to preheat the natural gas to temperatures suitable to remove all moisture from the gas for proper combustion in the turbines. Control, maintenance, storage, and administrative facilities will be located in a metal-sided building on the site. Tanks will be provided on site for the storage of distillate oil, raw/fire water, and demineralized water. In addition, an area for parking portable water demineralization units used for cooling will be located next to the water storage area. The facility will operate as a fully dispatchable facility; starting up, shutting down, and changing load as determined by the Company to meet market demand. Kirchfeld notes that the facility is intended as a peaking plant, running as necessary to meet the peak electrical loads for wholesale customers in Greenville County, the State of South Carolina, and elsewhere in the SERC.

Duke's single circuit 500 kV Asbury Transmission line crosses the southern portion of the site. An electric substation consisting of step-up transformers and circuit breakers will be located adjacent to the combustion turbine generators. The substation will increase the generator voltage from 18 kV to 500 kV for delivery into the Duke transmission system. An electric switchyard that will tie into the existing Duke 500 kV transmission lines will be located adjacent to the existing Duke transmission lines, which cross the site. The substation and switchyard will be connected by above ground high voltage cables.

With regard to the supply of natural gas for the facility, a connection will be made to the interstate natural gas pipeline operated by Williams Gas Pipeline-Transcontinental Gas Pipe Line Company (Transco), which is located approximately 1300 feet from the southeast boundary of the site. The Company is negotiating an agreement with Piedmont Natural Gas Company, Inc. to provide transportation services from the Transco pipelines to the site, according to Kirchfeld.

Kirchfeld also lists the major components of the facility, describes the combustion turbine generator system, the inlet air system, the distillate fuel oil facilities, the process water system, the electrical system, the control systems, and the fire protection system. Lastly, Kirchfeld describes the use of water by the facility.

Jolecia Marigny

Jolecia Marigny testified with regard to the anticipated environmental impact from the construction and operation of the facility. Tr. Vol. 1, Marigny at 176-191; Vol. 2

at 192-208. Marigny testified that the anticipated environmental impact would be minimal. The Company has filed all the required environmental applications and reports.

Marigny describes the impact of air emissions from the facility, as well as the facility's use of water. Marigny comments on the estimated wastewater discharge from the facility, the discharge of stormwater and the expected impact on vegetation and soils during facility construction and operation. In addition, the witness addresses the Company's visibility analysis and sound survey. Finally, Marigny concludes that the probable environmental impact of the facility is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations.

Brent L. Sires

Commission Staff witness Brent L. Sires discussed impacts of the proposed facility on the natural gas infrastructure of South Carolina. Tr. Vol. 2, Sires at 209-242. Sires examined impacts to the local distribution companies (LDCs) and end users of the LDC's, including residential and industrial customers resulting from the construction of the proposed generating plant. In addition, Sires discussed demand and capacity constraints on the Transco system and what impact this type project could have on Transco's ability to serve their natural gas markets in South Carolina.

Sires testified that the Company will seek to contract with Transco for a quantity of 200,000-dt/day of natural gas on an interruptible basis under Transco's interruptible transportation service tariff. The generating plant proposed by the Company will utilize natural gas in the summer months to generate electricity to meet peak electric demand on

the electric transmission grid. Sires examined how this load requirement would impact natural gas utilities in South Carolina, particularly South Carolina Pipeline Corporation (SCPC) and Piedmont Natural Gas Company, Inc. (Piedmont). Both SCPC and Piedmont demonstrate higher sales in the winter months. Sires also noted in a review of released capacity by each utility, that when the opportunity to release capacity becomes available, especially during the summer months, each utility has attempted to take advantage of the opportunity.

Sires further testified as to the significance of the load characteristics and release capacity analysis of SCPC and Piedmont regarding the potential impact to the natural gas infrastructure of South Carolina resulting from the Company's application. First, each utility experiences the greatest demand on its system during the winter months. Second, the analysis of released capacity indicates that each utility has firm capacity through the Transco System in excess of its respective interruptible and firm customer requirements. Greenville Generating's interruptible gas requirements do not impact SCPC or Piedmont negatively regarding moving gas through the Transco System.

Finally, Sires states a belief that the natural gas industry is willing and capable to meet the demand for natural gas in the next ten years. Based upon the testimony presented, Sires testified that there will be minimal impact, if any, on the gas infrastructure, resulting from approval of the Company's application.

A.R. Watts

Commission Staff witness A.R. Watts provided a review of the Company's proposal, and how it comported with the requirements of the South Carolina Utility Facility Siting and Environmental Protection Act. Tr. Vol. 2, Watts at 242-286. Watts noted that the proposed facility is intended to operate as an Exempt Wholesale Generator, through which it will provide electric power to the wholesale market. Watts noted that the facility will operate as a peaking plant, and as such will run as necessary to meet peak loads. The wholesale market includes possible sales to a local power company with whom Greenville Generating has been negotiating, electric cooperatives, municipalities, and other local power companies and wholesale marketers. Watts notes that South Carolina and its surrounding states have experienced increased usage and demand for power over the past five to ten years. The three major electric investor-owned utilities in South Carolina continue to record all-time peak demands for electric energy in both the summer and winter periods, Watts states. However, there has been only one addition of a base load facility in South Carolina in at least the last ten years by the IOU's, although some of the utilities have added peaking capacity over this same time frame. Watts further notes that all three of South Carolina's major IOU's resource plans indicate the need for additional capacity over the next ten years to meet the anticipated load requirements with some of those needs being met through purchases.

Watts opines that the proposed facility fits into the overall plan and scope of the incumbent IOU's to the extent that it could be available to provide energy and capacity during a time when the resource plans indicate a need for such generation. The owners of

this facility are required to absorb the expenses associated with integrating it into the grid. Since these are non-utility facilities, they will be added to the system at the expense of Greenville Generating Company, and will not be added to the rate base of any of South Carolina's regulated utilities, and thus will not subject South Carolina consumers to possible associated rate increases. Watts states that the existence of the facility would provide another option of the IOU's to meet the system demands without binding the utilities' ratepayers to paying for the facility. Lastly, Watts notes that the existence of the additional facility would enhance the system's reliability while minimizing the risk to the utility consumers.

FINDINGS OF FACT

1. Greenville Generating Company, LLC is a limited liability company organized under the laws of the State of Delaware, with its principal place of business in The Woodlands, Texas. The Company is authorized to transact business in the State of South Carolina.

2. Greenville Generating intends to construct and operate a six-unit simple cycle combustion turbine generating plant with a nominal net capacity of 900 MW. The Company expects this facility to be in commercial operation by June 2003. The facility will be located on a 66.79 acre tract west of Fork Shoals, in Greenville County, South Carolina.

3. The facility will utilize six combustion turbine generating units operating in simple cycle mode to produce approximately 900 MW of electrical output. The primary fuel will be natural gas. Each of the combustion turbine units will be enclosed in

its own weather-tight acoustical enclosure and each unit will have an individual exhaust stack. A separate building will house control, maintenance, storage, and administrative operations. The site for the facility will include tanks for the storage of distillate oil, raw/fire water, and demineralized water. In addition, an area for parking portable water demineralized units will be located next to the water storage area.

4. The facility will interconnect with the existing Duke Power 500 kV transmission lines which cross the southern portion of the site.

5. The facility will connect with the natural gas pipeline operated by Williams Gas Pipeline-Transcontinental Gas Pipe Line Company, which is located approximately 1300 feet from the southeast boundary of the site.

6. The Company has established the basis of the need for the facility.

7. The impacts on water and air quality and on natural resources from the construction and operation of the facility will be minimal and not adverse. The impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations.

8. The facility is being constructed to deliver and sell electrical power as an Exempt Wholesale Generator (EWG) operator in the wholesale generating market. The need for the facility is demonstrated in part by the Company's current negotiations of a Purchase Power Agreement (PPA) with a local power company. In addition, the Company also intends to sell power to, and believes that there is a market to sell power to electric cooperatives, local power companies, municipalities, and wholesale marketers,

among others. The electricity generated by the facility could be used for peak periods, periods of non-generation, and base supply, among other uses.

9. Neither the Commission nor Greenville Generating has received any adverse comments from any governmental agency responsible for environmental protection, land use planning, or other regulation of the new site or the facility.

10. Greenville Generating and the Commission have satisfied all statutory requirements for notice and opportunity for hearing which the Siting Act describes.

11. The facility will serve the interests of system economy and reliability.

12. There is a reasonable assurance that the proposed facility will conform to applicable State and local laws and regulations issued thereunder.

13. The public convenience and necessity require the construction of the facility.

14. The requested Certificate for the plant should be granted.

CONCLUSIONS OF LAW AND DISCUSSION

1. The Company has demonstrated the basis of the need for the facility. The average growth in summer peak demand within the SERC region, which includes South Carolina, is expected to be approximately 2.23% annually. (Hearing Exhibit 2). The age of existing generating units in South Carolina is a concern. The last significant generating facility was put into service in approximately 1996. All other significant generation assets serving South Carolina's needs have been in service for a longer period of time. The RDI 1999 Outlook predicts that the SERC region will have a need for more than 58,000 megawatts of additional generation capacity by the year 2012. In South

Carolina, a new winter peak demand for electricity was set on January 3, 2001. This new peak demand, coupled with maintenance outages at the V.C. Summer plant and the Cope station forced some local utilities to buy electricity from third party sources and to import power from other states to meet demand. Future outages with older plants combined with continued load growth will strain assets that are available to meet the State's electricity needs. Duke Power and CP&L have called for additional capacity in their Integrated Resource Plans filed with this Commission. Tr. Vol. 1, Williams at 52-70. The proposed facility fits into the overall plan and scope of these plans to the extent that it could be available to provide energy and capacity during a time when the plans indicate a need for such generation. Tr. Vol. 2, Watts at 250. The Greenville Generating facility is needed to meet anticipated demand in South Carolina and the Southeast. Tr. Vol. 1, Williams at 71.

2. The nature of the probable environmental impact is minimal. The Company analyzed the probable environmental impact of the construction and operation of the facility on water, sound, and air quality and on natural resources, and found little impact. The Company also examined the facility's wastewater discharge, the discharge of stormwater, and the expected impact on vegetation and soils, and the effect on visibility. Again, little or no impact is anticipated. Tr. Vol. 1, Marigny at 184-189.

3. The impact of the facility upon the environment is justified, considering the state of available technology and the nature and economics of the various alternatives and other pertinent considerations. Tr. Vol. 1, Marigny at 190.

4. The facility will serve the interest of system economy and reliability. As for system economy, South Carolina customers will only pay for the additional capacity if and when it is purchased. Greenville Generating will be taking all of the risk if the forecasted demand does not occur. Further, the plant will run on natural gas and will utilize a technologically advanced and economically efficient generation process. The facility will also enhance fuel diversity. The construction of this facility will provide peaking capacity, and will allow South Carolinians to align the mix of capacity purchases more closely with demand. Tr. Vol. 1, Williams at 75. With regard to system reliability, we hold that the Greenville facility will promote both statewide and regional reliability in several ways. The facility will add 900 megawatts of additional electric generation, which will be available to serve the needs of the people of South Carolina, and of the Southeast. Plant capacity will make a significant difference in establishing adequate reserve margins. The new plant will enhance the transmission system that serves South Carolina, because it will include upgrades to nearby transmission facilities. These improvements will be paid for by Greenville Generating, but will promote reliability. A new substation will also contribute toward enhanced reliability. The turbines quick-start capability and the plant's operational characteristics will facilitate responding to the minute-to-minute changes in load that naturally occur on an everyday basis. Lastly, the existence of the additional facility will enhance the system's reliability while minimizing the risk to the utility consumers. Tr. Vol. 1, Williams at 75-78; Vol. 2, Watts at 250-251. Because of these reasons, the facility will serve the interest of system economy and reliability.

5. There is reasonable assurance that the proposed facility will conform to applicable State and local laws and regulations issued thereunder. Tr. Vol. 1, Williams at 50; Vol. 1, Marigny at 189.

6. The public convenience and necessity require the construction of the facility. This conclusion is based on the projected growth in demand for electric generation in the county, state, and region, which establish the need for additional supply requirements. Tr. Vol. 1, Williams at 51.

7. The requested certificate should be granted, since Greenville Generating has satisfied all of the statutory requirements found in S.C. Code Ann. Section 58-33-160 (1976).

IT IS THEREFORE ORDERED THAT:

1. The Application of Greenville Generating Company, LLC for a Certificate of Environmental Compatibility and Public Convenience and Necessity be and hereby is, approved and the Certificate is granted.

2. Greenville Generating Company, LLC shall notify the Commission's Executive Director of the commercial operation of the plant described in the Application within ten (10) days of such operation.

3. This Order shall remain in full force and effect until further Order of the Commission.

BY ORDER OF THE COMMISSION:

Chairman

ATTEST:

Executive Director

(SEAL)

Concurring Opinion of Commissioner James Blake Atkins, Ph.D.

It is important to note that the Greenville Generating Facility is the first merchant facility proposed and certificated in South Carolina. In my opinion, the treatment and evaluation of this Application presented numerous problems, to both the Commission Staff as well as Commissioners. In previous siting cases, the Utility Facility Siting and Environmental Protection Act, S.C. Code Ann. Section 58-33-10, et seq. (1976 and Supp. 2000), has always been applied to the siting of generation and transmission by investor-owned utilities (IOUs), or either the construction of generation by independent power producers under contract to the State's IOUs. The certification of this facility represents the beginning of the transition to a wholesale generation market in South Carolina, and

with the continued implementation of [transmission] open access and regional transmission organizations (RTOs), can have a profound impact on the future of the existing vertically integrated electric market in our state. The significance of the Greenville Generating Facility decision on siting matters and the future wholesale and retail evolution of electricity markets in South Carolina should not be minimized.

Despite the unanimous vote in this matter, many of the issues raised during the hearing remain unresolved and problematic. The majority of the issues discussed in the hearing are contained in the North American Electric Reliability Council's Report, Reliability Assessment 2000-2009, The Reliability of Bulk Electric Systems in North America, October 2000 (hereinafter referred to as "NERC Report"). (Hearing Exhibit 2). This document is referenced extensively throughout this opinion. This opinion focuses on the conflicting issues faced by this Commission in siting merchant generation, compared with siting a traditional IOU facility, under the existing Utility Facility Siting and Environmental Protection Act. This matter was further complicated by the fact that the Commission has never promulgated substantive regulations to administer this Act, which was signed into law in 1971. Further, it should be noted that these issues are not unique to South Carolina, and will continue to be debated and discussed throughout the Nation. The ongoing controversy in California over power shortages, soaring wholesale costs, and retail rate caps is evidence that the evolution of wholesale markets remains incomplete.

In voting with the majority in this matter, I concur that the proposed 900 MW Greenville Generating Facility has the potential to provide additional reserve peak undesignated generation for the region. The need for such undesignated generation has

been clearly set forth in the Integrated Resource Plans (IRPs) submitted to the Commission by South Carolina Electric and Gas Company, Carolina Power and Light and Duke Energy. Because of the size of this facility, it has the potential to meet all of the estimated undesignated generation [purchases] for our investor-owned utilities (IOUs) beyond the Year 2009. This undesignated purchase amount does not include generation additions set forth by the IOUs in their respective IRPs. Ultimately, the portfolio of short or long-term futures contracts with our IOUs will determine whether or not the Greenville Generating Facility serves South Carolina's system economy and reliability in the future.

Discussion

The electric industry in the United States is in the midst of a major transition from vertically integrated electric utilities to a competitive marketplace for generation at the wholesale level. The Energy Policy Act of 1992 expanded the ability of non-utility companies to build and operate power plants to foster the development of wholesale generation markets. In 1996, the Federal Energy Regulatory Commission (FERC) issued Orders 888 and 889 to allow these competitive generators open [non-discriminatory] access to bulk transmission systems. Recently, FERC Order 2000 established a framework for regional transmission organizations (RTOs) to improve the engineering and economic efficiency and operation of the transmission system. (NERC Report at 32).

To avoid the failings of other deregulation and re-regulation attempts in other states, this Commission must address many important and challenging implementation issues. Rapid changes in the wholesale market will bring many challenges to the market

participants as they react to economic pressures while simultaneously attempting to maintain the reliability of the power system. (Id.).

The role of state commissions, under their traditional role of siting, IRPs review and fuel case adjudication is being modified as the industry restructures. This is true even in states such as South Carolina, where retail deregulation has not occurred. Given the language of the current Utility Facility Siting and Environmental Protection Act, it is unclear how this Commission should assess the contribution(s) of merchant generation in serving system reliability. However, it is clear that South Carolina's current Utility Facility Siting and Environmental Protection Act empowers the Commission with ensuring that the construction of generation "serve system reliability", whether merchant or investor-owned. Additional guidance through rule making, or amendments to the current Act, is needed to resolve this question.

As the electric industry restructures, wholesale generation developers are primarily driven by financial incentives, and not the maintenance of resource planning margins. (NERC Report at 9). This is a vast departure from the traditional integrated resource planning conducted by our IOUs since 1992. This raises the question as to how much generation capacity is adequate, and to what extent the Commission should be involved. Future decisions in the emerging wholesale market, regarding generation additions, will be based on short construction lead-times, and will be influenced by competitive considerations. Therefore, in administering the Utility Facility Siting and Environmental Protection Act and integrated resource planning, how should the Commission address the contribution of merchant plants to "system reliability?" If a

merchant plant exists, will it actually add to generation reliability? No such system reliability question exists regarding the contribution from generation owned by independent power producers with long-term contracts for power sales to our IOUs.

Another important reliability issue concerns the actual location of merchant generation in relationship to transmission. The location of future generating facilities will play an important role in the delivery of merchant power to end-users, especially in light of congested transmission paths. (NERC Report at 17). In terms of transmission adequacy and security, procedures to mitigate potential negative reliability impacts function effectively today. However, future transmission loadings will increase as new loading patterns emerge resulting from increased power transfers brought on by the growth in wholesale generation. (NERC Report at 29).

The urgency of transmission planning to address congestion is clearly stated within the discussion of the Southeastern Reliability Council's (SERC) transmission assessment. (NERC Report at 67). The assessment states that:

> The ability to transfer power above contractually committed uses both intra- and inter-regionally, has become marginal on some interfaces under both studied and actual operating conditions. The increase in bulk power marketing activity resulting from transmission open access tariffs continues to push the operating state of the transmission system into conditions for which it was not originally planned. SERC member systems need to take a proactive role in advocating the continued planning and operation of the system in a manner that meets NERC and SERC reliability criteria.

The challenge of this Commission during the transition to a wholesale market is to enable market participants to build (site) transmission and generation projects in

optimal locations (from both a transmission and generation perspective) to obtain the maximum benefits of competition while maintaining reliability. (NERC Report at 32). However, because of the competitive forces at work in wholesale generation, optimal siting of both generation and transmission concurrently may never function as efficiently as a vertically integrated system. This then raises the important issue that was never addressed during this hearing. In an effort to continue to promote system reliability within our current regulated market, should a series of alternative sites be considered (under the Act) which provides for "optimal" generation and transmission siting? An alternative siting analysis was clearly envisioned as a component of the Act (Section 58-33-160, (2)). Without such, it would appear that transmission congestion may be increased resulting in "non-optimal" transmission investments by RTOs.

In the future, the Commission's current siting authority, and new planning and implementation responsibilities of the RTO must be made consistent or merged. With the increasing [future] dependence on merchant generation, capacity siting will not necessarily be driven by load forecasting by our IOUs, but by market price signals. While price signals are important, there will continue to be a need to forecast trends and conditions within regions for the developer within their process. It will also continue to be important to forecast, and balance, both the location of the loads and the supply so that reliability is balanced. Ultimately, what entity (state commissions, RTOs, NERC or FERC) will be responsible for oversight of this forecasting? Will these new arrangements replace integrated resource planning in South Carolina despite the fact that we have a vertically integrated, regulated market?

NERC raises a number of these same concerns (NERC Report at 35):

> In a market environment, load forecasting will become a more challenging function for the industry. NERC's Load Forecasting Working Group may have to address these forecasting issues to insure that forecasts are totally representative of the needs of the regions. Who will ultimately be responsible for the quality of the load forecast given that multiple parties are involved in the development of the forecast of demand, supply, and the resulting market signals? How will the load forecast be communicated, and how can it be challenged?

Another extremely important issue that was not addressed by Commission Staff during the hearing concerns system reactive power. Maintenance of system reactive power is critical to the maintenance of voltage stability within the transmission system. When power transfers follow consistent directional patterns, planning for reactive power is straightforward. Under open access, transactions are being conducted over greater distances, and in directions and amounts that were not anticipated when the current transmission system was constructed. These power transfers are volatile, changing both daily and hourly, and make planning for reactive power enhancements difficult. With the implementation of the wholesale generation market, disincentives have been created which reduce reactive power generation. Because of the "economic incentive" to produce more real power by the wholesale generators, reactive power has been eroded since reactive power decreases as real power output increases. It will be critical that under FERC Order 2000, and the resultant implementation of the RTOs, that the load serving and transfer capability of the bulk transmission system be increased, including an analysis of the siting of merchant plants on maintenance of system reactive capability. (NERC Report at 30). Because the applicant failed to file any transmission

interconnection studies as part of this application, this Commission has no knowledge of the implications of this facility on reactive power. Future applications and associated testimony must address these issues in the Commission hearing, so as to insure system reliability as required in the Act.

As previously mentioned, the portfolio of contracts between our IOUs and the Greenville Generating Facility can have an important impact regarding the price paid for the power from this facility. Because power from this facility can be moved along the 500kv transmission line to which the plant will be interconnected, power will be easily available for sale to other regions outside of VACAR and SERC. This can have a profound impact on the market price as described by NERC. (NERC Report at 33):

> In contrast to the stable energy prices of the traditional regulated utility with an obligation to serve the demand of its native load, the provision of electric energy in an open market environment will reflect the potentially volatile prices in the commercial market. As price spikes have indicated in the past, the market price in the short term may become excessively high. These high prices may result in situations where providers, unsure of recovery of costs, curtail services to customers, or consumers will no longer be able to afford the service. In an absence of an obligation to serve, high market prices may jeopardize continuity of electric service in the sense that unaffordable prices may discourage providers from purchasing and providing energy to consumers.

Although this is the California scenario and unlikely in the Southeast, the increasing market share of merchant plants can potentially result in increased price volatility to South Carolina's IOUs. Without existing futures contracts, our IOUs may have to purchase peak power during volatile periods, which will reflect the open market price in other regions, and not necessarily the lower "avoided

cost" which has been observed previously. Depending upon the marketing of power from a merchant plant during peak periods, power may not be available for purchase by our IOU resulting from spot market and short-term contracts with other parties from the merchant plant. This Commission needs to devote additional attention to the availability of power from merchant plants during such peak periods, and ensure that the available power reflects a "prudent" price for our wholesale and retail consumers.

James Blake Atkins, Ph.D.